

IMPLEMENTING ARRANGEMENT
BETWEEN
THE DEPARTMENT OF ENERGY
AND
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
REGARDING THE
ALPHA MAGNETIC SPECTROMETER IN SPACE PROGRAM

Pursuant to the Memorandum of Understanding Between National Aeronautics and Space Administration and U.S. Department of Energy Regarding Energy-Related Civil Space Activities, dated July 9, 1992, this Implementing Arrangement establishes the roles and responsibilities of the Department of Energy (DOE) and the National Aeronautics and Space Administration (NASA) (also referred to collectively as "the Parties" and individually as "the Party") with respect to the Alpha Magnetic Spectrometer in Space (AMS) Program.

I. PROGRAM DESCRIPTION

1. The AMS is a state-of-the-art particle physics detector containing a large superconducting electromagnet that will be designed, constructed, and tested by an international team organized under DOE sponsorship and that will use the unique environment of space to advance knowledge of the universe and lead potentially to a clearer understanding of the origin of the universe. Specifically, the science objectives of the AMS are to search for anti-matter from cosmic sources (*i.e.*, anti-helium or heavier anti-matter), dark matter, strange matter, and other completely new phenomena.
2. The NASA-DOE activities will consist of: (1) the DOE-sponsored design, construction, and testing of the AMS and (2) NASA's provision of a Space Shuttle flight of the AMS to the International Space Station (ISS). Specifically, NASA will launch the AMS on the Space Shuttle and transfer and install AMS onto the ISS to be operated as an externally attached payload for a nominal three-year science mission, with science mission extension as mutually agreed between NASA and DOE.

II. AUTHORITY

1. This Implementing Arrangement (IA) is entered into by DOE pursuant to section 646 of the Department of Energy Organization Act (42 U.S.C. 7256); section 31 of the Atomic Energy Act of 1954, as amended, (42 U.S.C 2051) to do research and

development; and section 107 of the Energy Reorganization Act of 1974, as amended (42 U.S.C. 5817).

2. This IA is entered into by NASA pursuant to the National Aeronautics and Space Act of 1958, as amended (42 U.S.C. 2451 et seq., including 2473(c), and related statutes.

III. RESPONSIBILITIES

The Parties agree to use all reasonable efforts to meet the following agreed roles and responsibilities with respect to the AMS Program.

A. NASA

The NASA Headquarters Space Operations Mission Directorate (SOMD) is responsible for the overall NASA management of the AMS Program interface activity between NASA and DOE and for overall program management of the NASA AMS activities required to support the implementation of the AMS flight. The NASA AMS Project Office (APO) within the Engineering Directorate at the Lyndon B. Johnson Space Center (JSC) has been delegated responsibility for implementing the AMS Program for the NASA SOMD. The APO will serve as the AMS representative and will act as the single point of contact between the AMS Program and the ISS/Space Shuttle Programs. The APO will report and be responsible directly to NASA SOMD and will be the AMS NASA representative to all other NASA Center organizations providing equipment, materials, and services for the AMS Program.

In order to implement the AMS Program, NASA will perform or provide the following responsibilities:

1. Fly the AMS on the Space Shuttle to the ISS, and install AMS as an externally attached payload for a nominal 3 year science mission, with science mission extension as mutually agreed between NASA and DOE.
2. Integrate the AMS, including safety integration, for both launch site operations at the Kennedy Space Center (KSC) and flight operations on both the Space Shuttle and ISS.
3. Provide services as required on the Space Shuttle and ISS including power and data, as operationally available. AMS data, after passing through the standard ISS payload data process, will be delivered initially to the JSC Payload Operations and Control Center (POCC), and subsequently to the AMS remote POCC at CERN, Switzerland.
4. Support AMS development as mutually agreed between NASA and DOE at the programmatic level.

B. DOE

The DOE Headquarters Office of High Energy Physics, under DOE's Office of Science, is responsible for the administration of a Grant (DOE Award DE-FG02-05ER41360) with the Massachusetts Institute of Technology (MIT) for a basic science program in particle physics. Under this Grant, the MIT Principal Investigator for the AMS Program has organized, and is the Spokesperson for, the AMS International Collaboration, currently consisting of scientists from 59 institutes and universities in 16 countries, to implement its part of the AMS Program. The DOE, as appropriate, through its MIT Grant AMS Principal Investigator, will be responsible for:

1. Definition, design and development of the AMS experiment flight hardware and related ground support equipment (GSE); delivery to the Kennedy Space Center for integration in the NASA processing system; and establishment of the science mission requirements.
2. Management of: (1) All DOE-supported AMS science and engineering team activities, including travel, and related logistical expenses; (2) support for the DOE share of science operations before, during, and after the AMS flight; and (3) science data analysis, distribution, and publication.
3. Support AMS integration as mutually agreed between NASA and DOE at the programmatic level.

IV. POINTS OF CONTACT

The points of contact for activities under this IA are:

For NASA-
NASA AMS Program Manager
SOMD
NASA Headquarters
Washington, DC 20546

For DOE-
Associate Director of the Office of Science for High Energy Physics
SC-25/GTN
U.S. Department of Energy
1000 Independence Ave SW
Washington, DC 20585-1290

V. EXCHANGE OF TECHNICAL DATA AND GOODS

The Parties are obligated to transfer only those technical data (including software) and goods necessary to fulfill their respective responsibilities under this IA, in accordance with the following provisions, notwithstanding any other provisions of this IA:

1. The transfer of technical data for the purpose of discharging the Parties' responsibilities with regard to interface, integration, and safety shall normally be made without restriction, except as otherwise required by applicable law.
2. All transfers of goods and proprietary or export-controlled technical data are subject to the following provisions.
 - In the event a Party or its related entity (defined as contractors, subcontractors, grantees, or cooperating entities, or any lower tier contractors, subcontractors, grantees, or cooperating entities of a Party) finds it necessary to transfer such goods or data, for which protection against unauthorized disclosure is to be maintained, such goods shall be specifically identified and such data shall be marked.
 - The identification for such goods and the marking on such data shall indicate that the goods and data shall be used by the receiving Party and its related entities only for the purposes of fulfilling the receiving Party's or related entities' responsibilities under this IA, and that such goods and data shall not be disclosed or retransferred to any other entity without the prior written permission of the furnishing Party or its related entity.
 - The receiving Party or related entity shall abide by the terms of the notice and protect any such goods and data from unauthorized use and disclosure.
 - The Parties to this IA shall cause their related entities to be bound by the provisions of this Article through contractual mechanisms or equivalent measures.
3. All goods exchanged in the performance of this IA shall be used by the receiving Party or related entity exclusively for the purposes of this IA. Upon completion of the activities under this IA, the receiving Party or related entity shall return or otherwise dispose of all goods and marked proprietary or export-controlled technical data provided under this IA, as directed by the furnishing Party or related entity.
4. DOE is responsible for ensuring that MIT and the AMS International Collaboration acknowledge and accept their obligations to safeguard export-controlled technology and goods provided under the AMS Program.

VI. PATENTS AND INVENTION RIGHTS

Unless otherwise agreed by the Parties, custody and administration of inventions made as a consequence of, or in direct relation to, the performance of activities under this IA will remain with the respective inventing Party or its contractors or grantees. In the event an invention is made jointly by employees of the Parties or their contractors or grantees, the

Parties will consult and agree as to future actions toward establishment of patent protection for the invention.

VII. FINANCIAL ARRANGEMENTS

1. Each Party shall bear the costs of discharging its responsibilities under this IA, unless otherwise mutually agreed in writing. This IA shall not be used to obligate or commit funds or as the basis for the transfer of funds.
2. The ability of the Parties to carry out their respective responsibilities under this IA shall be subject to the availability of appropriated funds. Should either Party encounter financing problems, that Party shall notify the other Party thereof in a timely manner.

VIII. PUBLIC INFORMATION

1. Release of public information regarding the AMS Program may be made by the appropriate Party for its own portion of the program and, insofar as participation of the other Party is involved, after suitable consultation.
2. In general, results of experiments will be made available to appropriate journals or other established channels as soon as practicable, consistent with good scientific practice. In the event such reports or publications are copyrighted, NASA and DOE shall each have a royalty-free right under the copyright to reproduce, distribute and use such copyrighted work for their purposes.

IX. LIABILITY AND RISK OF LOSS

The Agreement Among the Government of Canada, Governments of Member States of the European Space Agency, the Government of Japan, the Government of the Russian Federation, and the Government of the United States of America concerning Cooperation on the Civil International Space Station of January 29, 1998 (hereinafter the "IGA") establishes a cross-waiver of liability and mandates that it be flowed down. In furtherance of the obligations the Government of the United States has undertaken in Article 16 of the IGA, DOE agrees to ensure, by amending its Grant with MIT or otherwise, that MIT and the AMS International Collaboration are in compliance with the obligations of the United States set forth in Article 16 of the IGA, consistent with the provisions set forth in 14 CFR 1266.102.

X. REGISTRATION OF THE AMS WHEN ATTACHED TO ISS

The AMS payload, when attached to ISS, shall be considered a U.S. payload and NASA will notify the State Department so that, if required, the AMS can be registered in accordance with the Convention on Registration of Objects Launched into Outer Space, which entered into force on September 15, 1976.

XI. ADDITIONAL TERMS

1. This IA in no way restricts either of the Parties from participating in any activity with other public or private agencies, organizations or individuals.
2. All activities under this IA shall be carried out in accordance with applicable laws and regulations, including those laws and regulations pertaining to export control and the IGA.
3. This IA is strictly for internal management purposes of the Parties. It is not legally enforceable and shall not be construed to create any legal obligation on the part of either Party. This IA shall not be construed to provide a private right or cause of action for or by any person or entity.

XII. AMENDMENT

This IA may be amended by written agreement between the Parties.

XIII. ENTRY INTO FORCE, TERMINATION, DURATION, AND CONTINUING OBLIGATIONS

1. This IA shall enter into force on the date of the last signature hereon and shall remain in force for the earlier of (1) completion of all activities under this IA or (2) a period of ten (10) years from the effective date, unless earlier terminated.
2. This IA may be terminated by mutual written agreement or by either Party following 120 days written notice to the other Party.
3. The obligations of the Parties concerning Art. V (Exchange of Technical Data and Goods), Art. VI (Patent and Invention Rights) and Art. IX (Liability and Risk of Loss) shall continue to apply after the expiration or termination of this IA.

By William H Gerstenmaier
William H. Gerstenmaier
Associate Administrator
for Space Operations
Mission Directorate
National Aeronautics and
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By W.F. Brinkman
W.F. Brinkman
Director
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Department of Energy

Date: 15 Jan 2010

Date: 1/7/10